Patent Claims

1. Method for producing a coating for the absorption of neutrons generated in the nuclear reaction of radioactive materials, whereby, in a dispersion bath, at least part of a shielding element, consisting of a base material, is coated on its appropriately predefined surfaces with a layer composed of an element with a high neutron capture cross-section and of an electrolytically or autocatalytically precipitable metallic element, while at least intermittently during the coating process a relative movement is generated between the respective surface to be coated and the dispersion bath which dispersion bath contains the element with the high neutron capture cross-section in the form of an electrically conductive compound.

2. Method as in claim 1, characterized in that the element with the high neutron capture cross-section is at least one of the elements of the group comprising boron, gadolinium, cadmium, samarium, europium and dysprosium.

3. Method as in one of the preceding claims, characterized in that the electrolytically or autocatalytically precipitable metallic element is one of the elements of the group comprising nickel, cadmium and copper.

4. Method as in one of the preceding claims, characterized in that the electrically conductive compound of the element with the high neutron capture cross-section is a metallic compound.

5. Method as in one of the preceding claims, characterized in that the electrically conductive compound of the element with the high neutron capture cross-section is a metal boride.

6. Method as in one of the preceding claims, characterized in that the element with the high neutron capture cross-section is in the form of an isotope with an augmented neutron capture cross-section.

7. Method as in one of the preceding claims, characterized in that the relative movement is generated by moving the object to be coated.

8. Method as in one of the claims 1 to 6, characterized in that the relative movement is generated by blowing in a gas and/or by introducing ultrasound waves.

9. Method as in one of the preceding claims, characterized in that the coating is formed by chemical means.

10. Method as in one of the claims 1 to 8, characterized in that the coating is formed by electrolysis.

11. Method as in one of the preceding claims, characterized in that a coating with a layer thickness of up to 800 μm is produced.

12. Method as in one of the preceding claims, characterized in that the element with the high neutron capture cross-section, or any of its compounds, is embedded in the metal matrix at a concentration of up to 60% by volume.

13. Method as in one of the preceding claims, characterized in that at least periodically during the coating process the dispersion bath is thoroughly mixed.

14. Method as in one of the preceding claims, characterized in that the process is performed in a ceramic or glass vessel.

15. Absorber produced by the method per at least one of the preceding claims, characterized in that it consists of an inorganic base material and, thereon, a layer composed of an element with a high neutron capture cross-section and an electrolytically or autocatalytically precipitable metallic element, said layer containing an element with a high neutron capture cross-section at more than 20% by volume.